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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,220	09/24/2001	Akihiro Goto	Q65416	6650

7590

07/25/2006

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EXAMINER

EVANS, GEOFFREY S

ART UNIT PAPER NUMBER

1725

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,220

Applicant(s)

GOTO ET AL.

Examiner

Geoffrey S. Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no disclosure of a control means that sets only the k-the pulse width to control the quantity of supply of the hard coat material.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. in U.S. Patent No. 5,858,479 in view of Magara et al. in U.S. Patent No.

5,434,380. Saito et al. discloses a surface treating method by electric discharges using a green electrode of TiH_2 with a working fluid that contains carbon (see column 5, line 250 to create a hard coating layer of Ti or TiC (with a Vickers hardness of 600 to 900, see column 6, line 45) and excellent anti-wear characteristics, and that the Tic is made by chemical decomposition of Ti with carbon due to oil decomposition. Saito et al. further discloses that by using TiH_2 electrode, the surface roughness is superior to a conventional WC-Co compact (see column 5, lines 58-65). Saito et al. does not disclose a specific power supply to create the electric discharges. Magara et al. teach a control

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member (see element 21 in figure 9) for controlling the electric discharge unit (element 10; see column 7, lines 52-56) for supplying pulses to the gap (see figure 6) with a first pulse width section and a first peak section and also a second pulse width section and a second peak section (see figure 16(b)) that meets the equation $(2 \leq k \leq n)$ by $2 = k = n$, and that increased surface roughness is prevented by limiting the current flow from the auxiliary power supply (see column 7, lines 60-63) and that the duration of the discharge is determined by the limiting resistor (see column 8, lines 55). Since during the first pulse width section less emission of the electrode occurs, inherently it can be considered to suppress the emission of the electrode material. It would have been obvious to adapt Saito et al. (479) in view of Magara et al. to provide this to provide an electric circuit for supplying the electric discharges with a coating having minimized surface roughness. It is inherent during an electric discharge process that the diameter of an electric discharge arc column is extended. Regarding claims 4 and 5, the setting of the pulse width and/or the peak value by the power supply taught by Magara et al. controls the emission of the coating by an open loop control method.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. in Japan Patent No. 5-148,615 in view of Magara et al. in U.S. Patent No. 5,434,380. Saito et al. disclose a surface treating method by electric discharge using an electrode made of a hard material such as a carbide (see paragraph 16) or sintered WC-CO (see paragraph 18) to create a hard coating on a workpiece. Saito et al. does not disclose a specific circuit or power supply for creating and controlling the electric discharges. Magara et al. teach a control member (see element 21 in figure 9) for

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controlling the electric discharge unit (element 10; see column 7, lines 52-56) for supplying pulses to the gap (see figure 6) with a first pulse width section and a first peak section and also a second pulse width section and a second peak section (see figure 16(b)) that meets the equation $(2 \leq k \leq n)$ by $2 = k = n$, and that increased surface roughness is prevented by limiting the current flow from the auxiliary power supply (see column 7, lines 60-63) and that the duration of the discharge is determined by the limiting resistor (see column 8, lines 55). Since during the first pulse width section less emission of the electrode occurs, inherently it can be considered to suppress the emission of the electrode material. It would have been obvious to adapt Saito et al. (615) in view of Magara et al. to provide this to provide an electric circuit for supplying the electric discharges with a coating having minimized surface roughness. It is inherent during an electric discharge process that the diameter of an electric discharge arc column is extended. Regarding claims 4 and 5, the setting of the pulse width and/or the peak value controls the emission of the coating by an open loop control method.

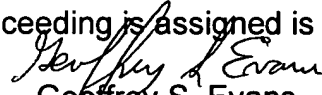
5. Applicant's arguments with respect to claims of record have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571)-272-1292. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

GSE


Geoffrey S. Evans
Primary Examiner
Group 1700